

WHAT IS CLAIMED IS:

1. A method for providing location privacy
for a terminal node (MN)

5 in communication with
 a communication partner node (CN)
in a communication network system comprising
at least a first communication network (HN, VN),
wherein a respective node (MN) communicating via
10 said communication network system is identified
 by its permanent network address (MN_PA) and
 addressable by a temporary network address
 (MN_CoA),
at least one server entity (LPS),
15 a plurality of agent entities (LPA1, ..., LPAn),
 wherein each of said at least one server entities
 (LPS) maintains
 a record of said plurality of agent entities
 (LPA1, ..., LPAn) and their respective location
20 within the network system,

said method comprising the steps of:

requesting (S41), by said terminal node (MN), said at
least one server entity (LPS) for location privacy,
selecting (S42), at said at least one server entity
25 (LPS), a specific one of said plurality of agent entities
 (LPA1, ..., LPAn), based on data maintained in said record
of said server entity and said temporary network address of
said requesting terminal node, and

communicating (S46) messages between said terminal
30 node (MN) and said communication partner node (CN) via said
selected one (LPA) of said agent entities.

2. A method according to claim 1, wherein
said request includes

the network address of said communication partner node (CN) with which a communication is desired to be performed,

the permanent network address (MN_PA) of said
5 requesting terminal node (MN), and

said temporary network address (MN_CoA) of said requesting terminal node (MN) by which it is addressable within said communication network system.

10 3. A method according to claim 1, wherein said respective location of said agent entities is derivable based on a network domain to which the agent entity is assigned, the domain being represented by a network address range in the network.

15 4. A method according to claim 3, wherein said selecting is based on said known network address (CN_A) of said communication partner node (CN) with which a communication is desired to be performed, which is included
20 in said request.

5. A method according to claim 4, wherein said selecting comprises the steps of
25 first retrieving a first network domain represented by a network address range to which address range the temporary address (MN_CoA) of the requesting terminal node (MN) belongs,

second retrieving a second network domain represented by a network address range to which address range the
30 address (CN_A) of the communication partner node (CN) belongs, and

determining the agent entity (LPA) to be selected, based on said retrieved information.

6. A method according to claim 1, further comprising a step of

informing (S43a) said requesting terminal node (MN) about the selected agent entity (LPA) before communicating
5 messages.

7. A method according to claim 6, further comprising the steps of

creating (S44), by said terminal node at said selected agent entity (LPA), a mapping between
10 the terminal node's permanent network address (MN_PA) and its temporary network address (MN_CoA), and creating (S45), by said terminal node at said communication partner node (CN), a mapping between

15 the terminal node's permanent network address (MN_PA) and the selected agent entity's address.

8. A communication network system, comprising

at least a first communication network (HN),
20 wherein a respective node (MN) communicating via said communication network system is identified by its permanent network address (MN_PA) and addressable by a temporary network address (MN_CoA),

at least one server entity (LPS),

25 a plurality of agent entities (LPA1, ..., LPAn),

wherein each of said at least one server entity (LPS) maintains

a record of said plurality of agent entities (LPA1, ..., LPAn) and their location within the network
30 system

9. A communication network system according to claim 8, wherein said respective location of said agent entities is derivable based on a network domain to which the agent

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entity is assigned, the domain being represented by a network address range in the network.

10. A communication network system according to claim 8,
5 wherein

to each of said communication networks there is associated one of said server entities.

11. A communication network system according to claim 8,
10 wherein

to each of said communication networks there is associated a plurality of said agent entities.

12. A server entity (LPS), comprising

15 - a database means adapted to maintain
a record of a plurality of agent entities (LPA1, ..., LPAn) and their respective location within a communication network system, and
- a processing means adapted to select a specific one
20 of said plurality of agent entities (LPA1, ..., LPAn), based on data maintained in said record and a temporary network address (MN_CoA) of a requesting terminal node (MN).

25 13. A server entity according to claim 12, wherein said respective location of said agent entities is derivable based on a network domain to which the agent entity is assigned, the domain being represented by a network address range in the network.

30 14. A server entity according to claim 13, wherein said processing means comprises
selection means which comprises

first retrieving means adapted to retrieve a first
35 network domain represented by a network address range to

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which address range the temporary address (MN_CoA) of the requesting terminal node (MN) belongs,

second retrieving means adapted to retrieve a second network domain represented by a network address range to which address range the address (CN_A) of the communication partner node (CN) belongs, and

determination means adapted to determine the agent entity (LPA) to be selected, based on said retrieved information.

10 15. A server entity according to claim 12, wherein said record is configured by a network operator dependent on a topology of a communication network forming a communication network system.

15 16. A server entity according to claim 12, wherein said record is configured by a network operator dependent on a topology of a communication network forming a communication network system, and said server entity is adapted to extend said record by adding record information from other server entities within said communication network system.

20 17. A server entity according to claim 12, further comprising transmission means adapted to receive and send information used for forming and maintaining said record, receive requests from terminal nodes (MN), and to send processing results to a requesting terminal.

30 18. A server entity according to claim 17, wherein said transmission means is adapted to send processing results to a selected agent entity.

35 19. An agent entity (LPA1, ..., LPA_n), comprising

a memory means adapted to cache a mapping
of a permanent address identifying a terminal
node (MN)

to a temporary address (CoA) of said terminal
node (MN) indicative of a location of said terminal
node (MN), and

routing means adapted

to forward data packets received from said
terminal node (MN) to an addressed communication
partner node (CN), and

to forward data packets received from said
communication partner (CN) to said terminal node (MN),
wherein said forwarding is based on the cached mapping
information in said memory means.

20. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPAn),
wherein each of said at least one server entity (LPS)

maintains

a record of said plurality of agent entities
(LPA1, ..., LPAn) and their location within the
network system,

wherein said terminal node is adapted to carry out the
method according to claim 1.

21. A server entity according to claim 15, wherein
said record is configured by a network operator dependent
on a topology of a communication network forming a
communication network system, and said server entity is

adapted to extend said record by adding record information from other server entities within said communication network system.

5 22. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
10 by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)
maintains
15 a record of said plurality of agent entities
(LPA1, ..., LPA_n) and their location within the
network system,
wherein said terminal node is adapted to carry out the
method according to claim 2.

20 23. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
25 by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)
30 maintains
a record of said plurality of agent entities
(LPA1, ..., LPA_n) and their location within the
network system,
wherein said terminal node is adapted to carry out the
35 method according to claim 3.

24. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)

maintains

a record of said plurality of agent entities
(LPA1, ..., LPA_n) and their location within the
network system,

wherein said terminal node is adapted to carry out the
method according to claim 4.

25. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)
maintains

a record of said plurality of agent entities
(LPA1, ..., LPA_n) and their location within the
network system,

wherein said terminal node is adapted to carry out the
method according to claim 5.

26. In a communication network system, comprising
at least a first communication network (HN),

wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
by a temporary network address (MN_CoA),
5 at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)
maintains
a record of said plurality of agent entities
10 (LPA1, ..., LPA_n) and their location within the
network system,
wherein said terminal node is adapted to carry out the
method according to claim 6.

27. In a communication network system, comprising
at least a first communication network (HN),
wherein a respective terminal node (MN) communicating
via said communication network system is identified by
its permanent network address (MN_PA) and addressable
20 by a temporary network address (MN_CoA),
at least one server entity (LPS),
a plurality of agent entities (LPA1, ..., LPA_n),
wherein each of said at least one server entity (LPS)
maintains
25 a record of said plurality of agent entities
(LPA1, ..., LPA_n) and their location within the
network system,
wherein said terminal node is adapted to carry out the
method according to claim 7.